POWDER ACTUATED TOOL
MANUFACTURERS' INSTITUTE

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THE BASICS
POWDER ACTUATED TOOL USE

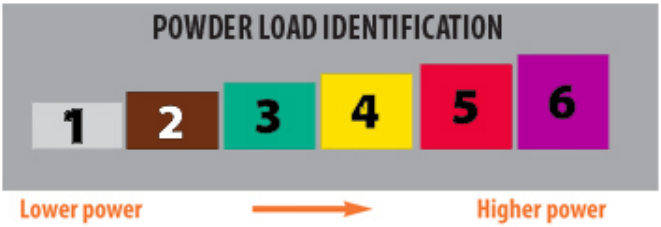
A powder actuated fastening system is a safe cost effective method of making forced entry fastenings into various construction materials. Although this system is relatively simple to use, there are important precautions and safeguards that must be observed.

This reference is designed to provide only the basic information on powder actuated tool systems. It is not intended to replace the important step of required training and certification provided by the tool manufacturer. Please refer to the tool manufacturer for this required tool training.

A powder actuated fastening system consists of the following components: a powder load or booster, the fastener, the tool and the base material.

THE LOAD

The powder load or booster is commonly available in various sizes ranging from 22 through 27 caliber. Regardless of the type, caliber, size, or shape, there is a standard number and color code used to identify the power level or strength of all powder loads. The following chart shows this simple number and color identification code.



The type and range of powder loads/boosters used with any tool is contained in the operator's manual for the applicable tool. It is generally recommended to start with a low power load and work up until a successful fastening is achieved.

THE FASTENER

The fasteners used in powder actuated tools are not common nails. They are manufactured from special steel and heat treated to produce a very hard fastener. These properties are necessary for the fastener to penetrate concrete or steel without breaking. A powder actuated fastening results in a permanently installed fixture. Be certain on fastener placement as they are very difficult to remove.

Selection of the proper fastener depends upon the application and material into which the fastener is to be driven. As a general rule, when fastening into steel, the point of the fastener should penetrate the opposite side. In selecting the proper fastener for concrete, you determine the correct length by allowing for the thickness of the material you intend to fasten, plus the depth of penetration into concrete. A one-inch penetration depth is generally sufficient. If in doubt as to which fastener type should be used, consult the tool manufacturer's representative. Contact the manufacturer for information on fastener holding power or rating as well as necessary fastener edge distance and minimum spacing.

THE TOOL

Safe operation of the tool requires knowledge and constant alertness by the operator. Since features and method of operation for the tool will vary from model to model, you must follow the manufacturer's instructions for the tool model used.

- Wear eye and hearing protection when operating the tool.
- Check the tool according to the manufacturer's instructions prior to use.
- Never load the tool until you are ready to make a fastening.
- Keep hands away from the fastening end of a loaded tool
- Always keep the tool pointed in a safe direction

THE BASE MATERIAL

The material into which the fastener is ultimately driven in to is known as the base material. In general, base materials are steel beams, concrete and masonry of various types and hardnesses.

Suitable base materials have sufficient hardness and thickness to prevent the entire fastener from passing completely through. Suitable base material will compress around the fastener shank and product holding power.

Unsuitable base materials are too hard, too soft or too brittle. They will not allow the fastener to properly penetrate and hold in place.

Too Hard – Materials the Fastener will not penetrate. Examples are: Hardened steel, Cast iron, Spring steel, Marble Natural rock, etc.

Too Soft – Materials the fastener may penetrate completely through. Examples are: Wood, Plaster, Drywall, Plywood, etc

Too Brittle – Material the fastener will crack and could deflect or pass completely through. Examples are: Glass, Glazed Tile, Brick, Slate, Clay tile, etc.